

**Nebraska Information Technology Commission  
Community Technology Fund 2002  
Application Form**

**Project Title:** Sarpy County Geographic Information System (GIS) Base Map

**Submitting Entity:** Sarpy County

**Grant Amount Requested:**

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**Executive Summary:**

The Sarpy County Geographical Information System (GIS) Coalition was created to develop a unified GIS. A GIS is a “computer technology that combines geographic data (the locations of manmade and natural features on the earth’s surface) and other types of information (names, classifications, addresses, and much more) to generate visual maps and reports.” In the operation of local governments, a myriad of services are tied to land location, e.g. police and fire services, street construction and maintenance, economic development, tax assessment, planning, etc.

The highly technical process of developing the GIS land base map will be completed through a contract with an engineering firm with assistance from a software/technical consultant. Once a single county-wide land base map is developed, each entity can overlay specific information needed by them without having to duplicate the efforts required to create and maintain basic information regarding the location and description of streets, lots, rivers, section lines, etc. The development of the GIS will greatly enhance the accessibility of information to local government departments, decision-makers and to the public.

## Goals, Objectives and Outcomes

### 1. Describe the project, including:

- **Problem statement and needs assessment (5 points)**

It has been estimated that 70-80 percent of the average local government's work involves land or geographically related issues or tasks.<sup>1</sup> In Sarpy County, land-based functions include planning, zoning, economic development, road maintenance and construction to name a few. These functions and others are shared by the cities within Sarpy County, as well as the Natural Resources District. These departments are all repetitively data entering land-based information in formats that sometimes vary between jurisdictions. The challenge comes in developing a single unified GIS (and specifically a land base map) that will allow each County and City department to integrate tabular data with computer digitized maps. In late 2000, Sarpy County contracted with the engineering firm of Lamp, Rynearson and Associates (LRA) to perform a GIS needs assessment. LRA, with assistance from technical consultant ADC, prepared an overview of each department's typical mapping tasks, needs and responsibilities. Following the overview, the current mapping software and databases used by each department were identified. Then, possible data "layers" and applications that staff representatives expressed interest in were outlined. The needs assessment also identified implementation recommendations and strategies and funding requirements. The City of Bellevue obtained a similar needs assessment which is representative of the needs of each city.

- **Goals (i.e., increasing Internet literacy) (5 points)**

The goal of the GIS Coalition Grant is the development of a single unified land base map that will be used as the core element for the Geographic Information System.

- **Project activities or outputs (specific, measurable steps to get to the goal—i.e., offering six sessions of classes). Include training and staff development activities if appropriate. (5 points)**
- Complete needs assessment for each department.
- Obtain participation approval from each coalition member.
- Secure contract with engineering firm and technical consultant for development of base map.
- Create base map:
  - Re-project aerial photos
  - Public Land Survey System Creation
  - Digitize Countrywide Hydrology
  - Legal Lot Creation

<sup>1</sup>GIS Tools and Their Implications for Local Government Decision Making

- **Expected outcomes (impact on the project's beneficiaries–i.e., at least participants will learn to search for information on the Internet searches and send e-mail) (5 points)**
- Each coalition member will have access to the land base map upon which they can build specific layers.
- Each coalition member will experience efficiencies in not having to data enter information that is contained in the centrally maintained land base map.
- Inter-jurisdictional agencies such as police and planning departments will develop common and consistent methods for street addressing, lot creation, etc.
- Selected GIS information will be available to the public through the Internet.

## **Project Justification**

2. Explain how the proposed project supports one or more of the funding priorities by describing how the project: (10 points)
  - Uses information technology to address community needs related to community and economic development, the delivery of local government and library services and health care.

The Sarpy County GIS Coalition Project fulfills a multitude of needs and services, such as:<sup>1</sup>

- **Economic Development:** The GIS could ultimately allow a developer to check on any parcel in the County and view the status of the zoning, flood plain, utilities, assessed value, taxes, surrounding development, and much more.
- **Law Enforcement:** The GIS could be used to inventory the location of crimes, arrests, convicted perpetrators, plotting of police beats and patrol cars, and alarm and security system locations.
- **Public Works:** The GIS could be used to inventory, design and schedule maintenance for roads, bridges and buildings.
- **Uses information technology to address community needs in innovative ways or initiates the use of information technology to address community needs.**

The proposed GIS takes a highly technical process of combining elements such as digital ortho-quad photography, geodetic survey control, public land survey system and coordinate geography and produces a user friendly web-deployed system that the public can use to check on a land parcel and determine information such as elected representatives, tax and valuation information and zoning status.

<sup>1</sup>GIS Tools and Their Implications for Local Government Decision Making

**Demonstrates strong collaboration within a community or region in addressing IT development.**

The Sarpy County GIS Coalition includes all Sarpy County departments, each city in the County and the Papio-Missouri Natural Resources District. These entities are the principle jurisdictions responsible for legal actions that affect changes to land such as street and lot creations and zoning descriptions.

3. Describe the expected benefits (both tangible and intangible) of the proposed project. If applicable, include any economic benefits or long-term cost savings. (5 points)

The inclusion of each of the Coalition member entities will ensure the maximum reduction in data entry redundancy. It will also ensure consistency in areas such as street addressing and legal lot creation.

## **Technical Impact**

4. Describe the hardware, software and communications needed for this project and explain why these choices were made. (5 points)

Hardware will be required for the ultimate implementation of the GIS but is not significant to the initial step of land base map creation. The hardware recommended by Lamp Rynearson and Associates is appended as an attachment. It should be noted that Sarpy County in particular has all recommended hardware elements except for some additional storage that will be required.

The software recommended to the Coalition by the Sarpy County Information Systems department is ESRI Arc View 8.x. This recommendation was confirmed by ADC, the technical consultant for the project. ESRI is a leader in the GIS market, with products ranging from desktop GIS to web-based GIS.

Sarpy County has existing communications networks with the cities of Bellevue (T-1 line), Papillion and LaVista (4 Megabit Air Lan connection). Similar communications networks will be developed with Gretna, Springfield and PMNRD.

5. Address any technical issues with the proposed technology including: (5 points)
  - **Conformity with generally accepted industry standards. Projects which interface with other state systems (such as distance learning systems) should also address NITC technical standards and guidelines.**

Sarpy County is in the process of negotiating a contract with Lamp, Rynearson and Associates (LRA) who responded to a Request for Proposal (RFP) for the development of GIS land base map. In preparing the RFP, Sarpy County relied heavily on the Nebraska Guidebook for Local Government Multipurpose Land Information Systems (Nebraska Guidebook)

promulgated by the Nebraska Advisory Committee on Standards for Multipurpose Land Information Systems.

- **Compatibility with existing institutional and/or statewide infrastructure.**

Sarpy County's proposed agreement with LRA provides that the land base map creation process "will be overseen by a Nebraska Licensed Land Surveyor to assure the utmost accuracy and integrity. All standards will be followed as set forth by the Nebraska Advisory Committee on Standards for Multipurpose Land Information Systems."

- **Reliability, security and scalability (future needs for growth or adaptation).**

The proposed agreement between Sarpy County and LRA contains a number of provisions relating to accuracy including deed research, discrepancy reports and the establishment of tolerances. The agreement also provides that LRA will provide Check Plots that must be approved by Sarpy County before acceptance.

Security of the network is provided by the Sarpy County Information Systems department who recently entered into a \$10,000 contract with Gateway to do a network security audit to provide assurance that Sarpy County systems are secure.

The potential for growth or adaptation of the proposed GIS land base map is virtually unlimited. Any number of parcels may be added as well as "layers" of data.

6. Describe how technical support will be provided. (5 points)

Technical support will be provided through three avenues:

1. An agreement with LRA and their software/technical consultant ADC who will develop and integrate the land base map and provide training.
2. Sarpy County intends to hire a full-time GIS Coordinator to direct the County's responsibilities relating to the GIS. This position will report to the Sarpy County Information Systems department.
3. The Sarpy County Information Systems department will provide support. Their staff includes Systems Managers, Software Specialists, Network Technicians, Training Coordinators, etc.

## **Preliminary Plan for Implementation**

7. Describe the project sponsor(s) and stakeholder acceptance. If letters of support are included, list the entities or individuals submitting letters of support and briefly summarize the letter's content. Include information on any match being provided by project sponsors. (5 points)

The Sarpy County GIS Coalition is made up of Sarpy County, Bellevue, Papillion, LaVista, Gretna, Springfield and PMNRD. Each of these entities has signed an interlocal Agreement that clearly outlines the scope of work, responsibilities of each jurisdiction, cost sharing and the creation of and bylaws for the GIS Advisory Board. Sarpy County has agreed to pay for a portion of the land base map creation costs that are primarily attributable to the County. For the remaining costs, each sponsor has agreed to contribute to the project based on the number of parcels located within their jurisdiction. Each entity has budgeted for these costs in the 2001-2002 FY budget. A copy of the Interlocal Agreement has been appended to the application.

8. Describe the project team, including their roles, responsibilities and experience. (5 points)

The project team will be made up as follows:

1. GIS Coordinator. It is anticipated that this position will be filled around July 2002 and will report to the Information Systems Director. This person will have significant experience in GIS and computer/network solutions. This person will be the main interface between Sarpy County and LRA/ADC.
2. Mr. Mark Walters–Information Systems Director. Mr. Walters has been Information Systems Director for four years and has 18 years of experience in all facets of Information Systems. He will directly supervise the GIS Coordinator and ensure that the project implementation proceeds on schedule and as planned.
3. Mr. Tom Lynam–Sarpy County Surveyor. Mr. Lynam has served as the elected Sarpy County Surveyor for 11 years and has been a licenses land surveyor for 13 years. Mr. Lynam’s office is responsible for maintaining all 1/4 section and section maps; the creation and recording of tax lots; and the maintenance of digital Auto CAD files.
4. Each city will designate a coordinator to interface between their entity and the contracted engineer/consultant.
5. The GIS Advisory Committee will provide input during creation of the land base map.

9. List the major milestones and a timeline for completing each milestone. (5 points)

<u>Milestones</u>	<u>Completion</u>
Needs assessment	February 2001
Coalition Member Approval	February 2002
Engineering/Consultant Contract	March 2002
Re-Project Aerial Photos	April 2002
Public Land Survey System	April 2002
Digitize County-Wide Hydrology	April 2002
Legal Lot Creation	April 2003

10. Describe how the project **will be sustained. (5 points)**

Once the land base map has been developed, the GIS will be maintained and sustained through budget appropriations from Sarpy County and all Coalition members. The GIS Coordinator will assist each member in determining the required budgetary amounts. The GIS Coordinator will also assist the County, City and PMNRD staffs in developing procedures to continually update data so that the integrity and accuracy of the system is maintained.

11. Describe the project's evaluation plan, including measurement and assessment methods that will verify project outcomes. (10 points)

The Interlocal Agreement signed by all Coalition members establishes a GIS Advisory Board and Bylaws for such a Board. The Bylaws provide that "... the Board shall meet for the purpose of information sharing to include the assessment of the delivery of GIS services. . ." In other words, it is the GIS Advisory Board's responsibility to evaluate the effectiveness of the GIS and recommend improvements or enhancements that could be made. The Board will also be requested to send out a survey to user departments upon the completion of the land base map to determine effectiveness of the GIS up to that point.

### **Financial Analysis and Budget (20 points)**

**The budget will be scored on reasonableness (up to 10 points), mathematical accuracy (up to 5 points), and the strength and appropriateness of the match (up to 5 points).**

**Provide the following financial information:**

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	<b>CTF Grant Funding</b>	<b>Cash Match (5)</b>	<b>In-Kind Match (6)</b>	<b>Other Funding Sources (7)</b>	<b>Total</b>
Personnel Costs (1)					
Contractual Services (2)	\$25,000	\$322,011			\$347,011
Capital Expenditures (3) (Hardware, software, etc)					
Supplies and Materials					
Telecommunications					
Training					
Travel					
Supplies and Materials					
Other Costs (4)					
<b>TOTAL</b>	\$25,000	A\$322,011*	<b>B</b>		C\$347,011

**Match Percent** = 92.8%

**Match Requirement:** This grant requires a 20% match. Please calculate your match by using the formula below to ensure your application meets this requirement.

**Total Cash Match (A) + Total In-Kind Match (B)**

\_\_\_\_\_  $\geq 92.8$

**Total Project Cost (C)**

\*See note on Appendix B

**Financial Narrative Notes and Instructions**

**Several Categories (see below) require further itemization.**

1. Sarpy County does intend to hire a full-time GIS Coordinator; however, with a 92.8% match, it is not necessary to show the salary for this position as an additional cash match.
2. An itemized cost sheet from LRA's proposal is attached to document Contractual Services Costs. (See Appendix B)
3. Hardware costs will be incurred, but as explained earlier, most of the requirements for hardware will occur in Phase II after the land base map creation. In addition, Sarpy County already has nearly all hardware identified by LRA in their needs assesment.
4. The cash match will come from contributions from each GIS Coalition member and is based on the number of land parcels within each jurisdiction.

<u>Entity</u>	<u>Gross Contribution</u>	<u>%</u>	<u>CTF Funds</u>	<u>Net Contribution</u>
Sarpy County	103,115	45.63	11,407	91,708
Bellevue	74,503	32.97	8,243	66,260
Papillion	24,789	10.97	2,742	22,047
LaVista	16,247	7.19	1,798	14,449
Gretna	4,474	1.98	495	3,979
Springfield	2,847	1.26	315	2,532
PMNRD	10,000			10,000
Soley Sarpy Co. Costs	<u>111,036</u>			<u>111,036</u>
TOTAL	<u>347,011</u>	<u>100.0</u>	<u>25,000</u>	<u>322,011</u>